A Yellowfin Menhaden Without Pelvic Fins

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Menhaden occasionally have one or both pelvic fins missing. This is usually attributed to attacks by predators. Reports of deformed menhaden are limited to pugheadedness and vertebral anomalies (Dahlberg, 1970a; Lewis, 1966; Musick and Hoff, 1968; Schwartz, 1964-65; Sutherland, 1963; and Warlen, 1969). Gunter and Ward (1961) reported a Gulf menhaden, *Brevoortia patronus,* with its pelvic girdle and fins bitten off. Marr (1945), noting missing pelvic fins in a northern anchovy, *Engraulis mordax,* urged that anomalies of possible evolutionary significance should be reported.

A yellowfin menhaden, *B. smithi,* lacking pelvic fins was taken by gill net in the Indian River, near Sebastian, Florida, on January 23, 1965. The fish, a 212 mm (standard length), 2-year-old female, was normal in all other external characteristics (Fig. 1). Apparently the pelvic fins and the axillary appendages (elongated scales around the insertion of the fin) never developed.

An x-ray photograph showed a pelvic girdle between the dorsolateral projections of scutes 16 and 22. The girdle was dissected and found to be deformed (Fig. 2). Both pelvic bones were fused together. The anterior end of the left pelvic bone appeared normal, but the right bone apparently turned upside down and grew downward into the "V" of the keel. The small actinosts that normally support the rays of each pelvic fin were not found; girdle musculature was reduced. In normal menhaden, the two dorsolateral projections of the scute at the posterior end of the girdle are either notched near the base, or missing, where the pelvic fin passes through the keel. None of the scute projections near the pelvic girdle in this fish were notched or missing. Figure 3 illustrates a normal pelvic girdle with fins attached.

The anomaly may be related to hybridization of menhaden in the Indian River. Dahlberg (1970b) concluded that yellowfin menhaden hybridize with Atlantic menhaden, *B. tyrannus,* on the east coast of Florida. The specimen reported here, however, was not a hybrid. There may be evolutionary significance in the loss of pelvic fins in yellowfin menhaden. Several other clupeid fishes, in the subfamily Pristigasterinae, lack pelvic fins. Hildebrand (1963) stated

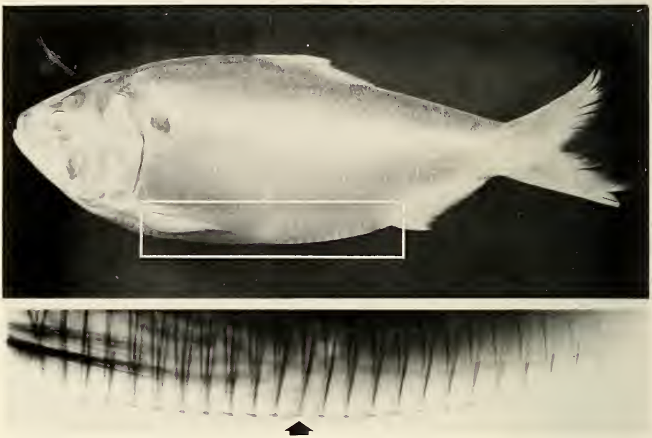

Fig. 1. A 212-mm yellowfin menhaden lacking pelvic fins; radiograph of same fish showing position of deformed pelvic bone, above 20th abdominal scute (arrow). Scutes 9 through 32 are visible in the x-ray.

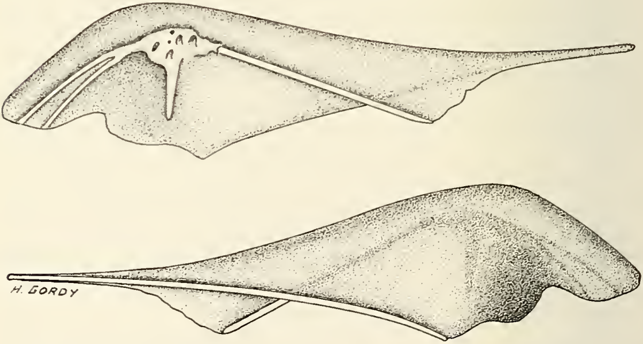

Fig. 2. Deformed pelvic girdle; the right (top) and left (bottom) pelvic bones fused together. The girdle is 22 mm. long.

that yellowfin menhaden do not school as do the commercially important Atlantic menhaden; neither do they migrate long distances. The presence or absence of pelvic fins may be unimportant to non-

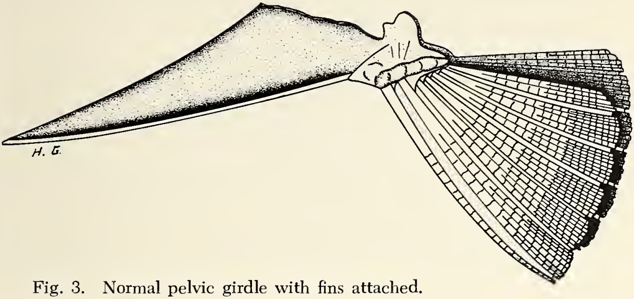

Fig. 3. Normal pelvic girdle with fins attached.

schooling, nonmigratory yellowfin menhaden. It is difficult to conclude much about the significance of this observation without knowing how many menhaden lack pelvic fins. During previous trips to the Indian River to collect ripe gametes from yellowfin menhaden, I incidentally noted a small percentage of this species with missing or atrophied pelvic fins. Unfortunately, I kept no records of the incidence. I suggest that biologists not inclined to do so, keep accurate records and report the frequency of occurrence of deviations from normal conditions, such as the anomaly I have reported.

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